



Rigorous empirical
research on
intellectual property

Green tech helping net zero emissions by 2050

Host: Axel Ferrazzini, Managing Director, 4iP Council

Presenters:

- Dr. Suracha Udomsak
- Dr. Dallas Wilkinson
- Dr. Stephanie Guichard



What do we do?



Non-Profit Activities



High Quality Academic Research



Education



Promote Innovative SMEs

Free materials on...



Summaries of
papers, studies,
guides and case law



Interactive
graphics



Interviews
to inspire SMEs



Webinars

For SMEs:

European Court Decisions:



Which types of intellectual property do you need?

Filter table columns

	Patents	Copyrights	Designs	Trademarks	Trade Secrets
What do they protect?	All inventions: a new and inventive way of doing something or solving a technical problem. See also: Patents	Any work of original intellectual creation. See also: Copyrights	Any new and original visual appearance of a product. See also: Designs	Any sign capable of distinguishing goods or services from those of other undertakings. See also: Trademarks	Any confidential information which has commercial value because it is not generally known. See also: Trade Secrets
Examples of what is protected	Inventive products and processes in all areas of business. The examples of protected inventions by IPUs: See also	Audio-visual works, pictures, graphics, architecture, software, designs, literature, music, games, films, music and more. Examples: songs. See also: Copyrights	Designs, containers, logos, graphics, symbols, computer icons, interfaces, graphical user interfaces, logos and more. See also: Designs	Words, phrases, letters, numbers, sounds, smells, tastes, colours, and more. See also: Trademarks	Secrets, formulas, algorithms, and more. See also: Trade Secrets
How are my rights protected?	Prevents unauthorized making, using or selling of the patented invention. See also: Patents	Prevents the work being further authorized without the author's consent. Protects the integrity and attribution of the work. Related rights: Public performance and display of the work. See also: Copyrights	Prevents unauthorized use of all elements or certain visual appearance for the same kind of products within a sector. See also: Designs	Prevents unauthorized use of the sign for goods or services. See also: Trademarks	Prevents unauthorized disclosure of the secret. See also: Trade Secrets
How long is my innovation protected?	Up to 20 years.	Lifetime of the author +50 to 70 years after death (depending on the country).	Up to 25 years for registered designs.	Up to 10 years for unregistered designs.	As long as the information remains secret.
Do I have to register it?	Yes, filing an application to a patent office is required. More on patent applications in: Patents	No, copyright protection arises automatically with its creation. See also: Copyrights	Yes, but it is highly advisable to register designs. More on design rights in: Designs	No, but it is highly advisable to register trademarks. More on trademarks in: Trademarks	No, but it is highly advisable to register trade secrets. More on trade secrets in: Trade Secrets



2 - NEGOTIATING

3 - FUNDING

4 - STRATEGIC VALUE

Explore how patents add value with our [interactive guide](#).

3 - COLLABORATION

4 - FUNDING

Explore the benefits of copyright with our [interactive guide](#).

4 REASONS 4 TRADEMARKS

- 1 - DIFFERENTIATION
- 2 - PROTECTION
- 3 - REPUTATION
- 4 - REVENUE

Explore the benefits of trademarks with our [interactive guide](#).

4 REASONS 4 DESIGN RIGHTS

- 1 - EXCLUSIVITY
- 2 - COMMERCIALISATION
- 3 - REPUTATION
- 4 - VALUE

Explore the benefits of design rights with our [interactive guide](#).

Case Law post CJEU ruling *Huawei v ZTE*

[Back to main 4IP Council site](#)



4IP Council home Case law home CJEU decisions German court decisions Dutch court decisions English court decisions French court decisions Irish court decisions Italian court decisions Romanian court decisions National Courts Guidance Authors & contributors

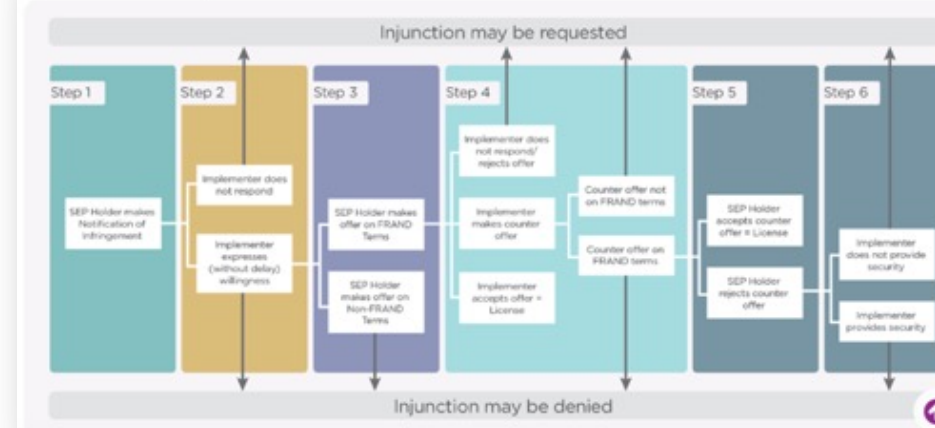
National Courts Guidance

Negotiating Licenses for Essential Patents in Europe

Increased clarity provided on the principles established by the Court of Justice of the European Union in *Huawei v ZTE*.

The Court of Justice of the European Union clarified, in *Huawei v ZTE* (Case No. C-170/13), European law relating to the availability of injunctive relief for infringements of FRAND-based standard essential patents. In doing so, the Court provided a legal framework focused on the good faith conduct to be expected of both parties. Since

Huawei v ZTE process



Green tech helping net zero emissions by 2050



Dr. Suracha Udomsak is currently Chief Innovation Officer and Executive Vice President – New Business of Chemical Business, SCG (Parent company: Siam Cement Group)



Dr. Dallas Wilkinson is a customer focused, strategic international leader growing businesses and people by applying & commercializing technology.



Dr. Stephanie Guichard is Economic Strategy Director at Qualcomm, where she focuses on the economic, social, environmental impact of wireless technology.

What can be done in plastic manufacturing?

Green technology for net zero emissions by 2050

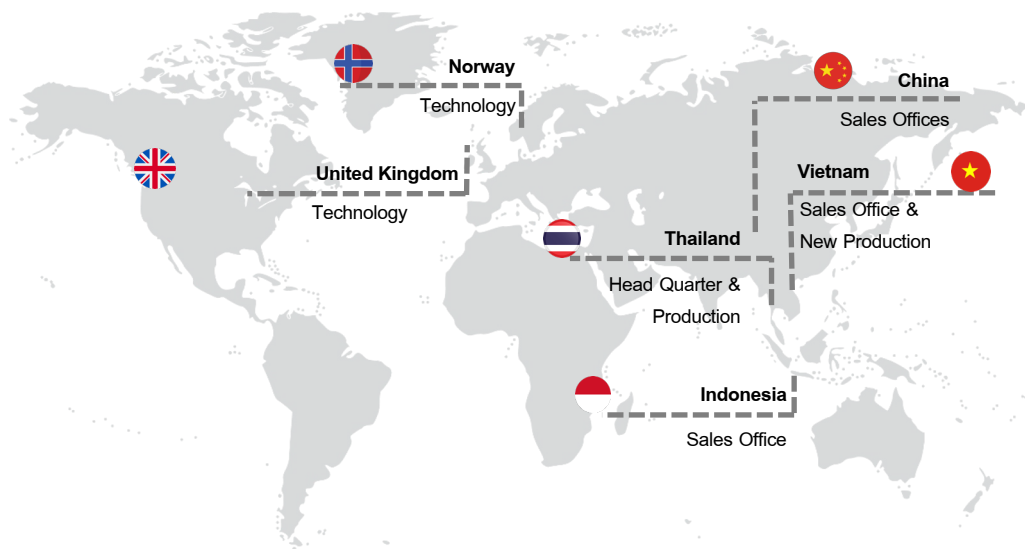
Dr Suracha Udomsak

SCGC is a leader in sustainable chemical innovations and manufacturing that offers a full range of petrochemical products.

KEY FIGURES

Sales Revenue
(as of 2021)
7.5 Billion USD

Net Profit
(as of 2021)
1 Billion USD



We are committed to conduct business in line with **Environmental, Social & Governance (ESG)** with **Strategic ESG Directions**

By 2030, SCGC is committed to

GROW

GREEN POLYMER

PORTFOLIO TO

1 million tonnages

REDUCE

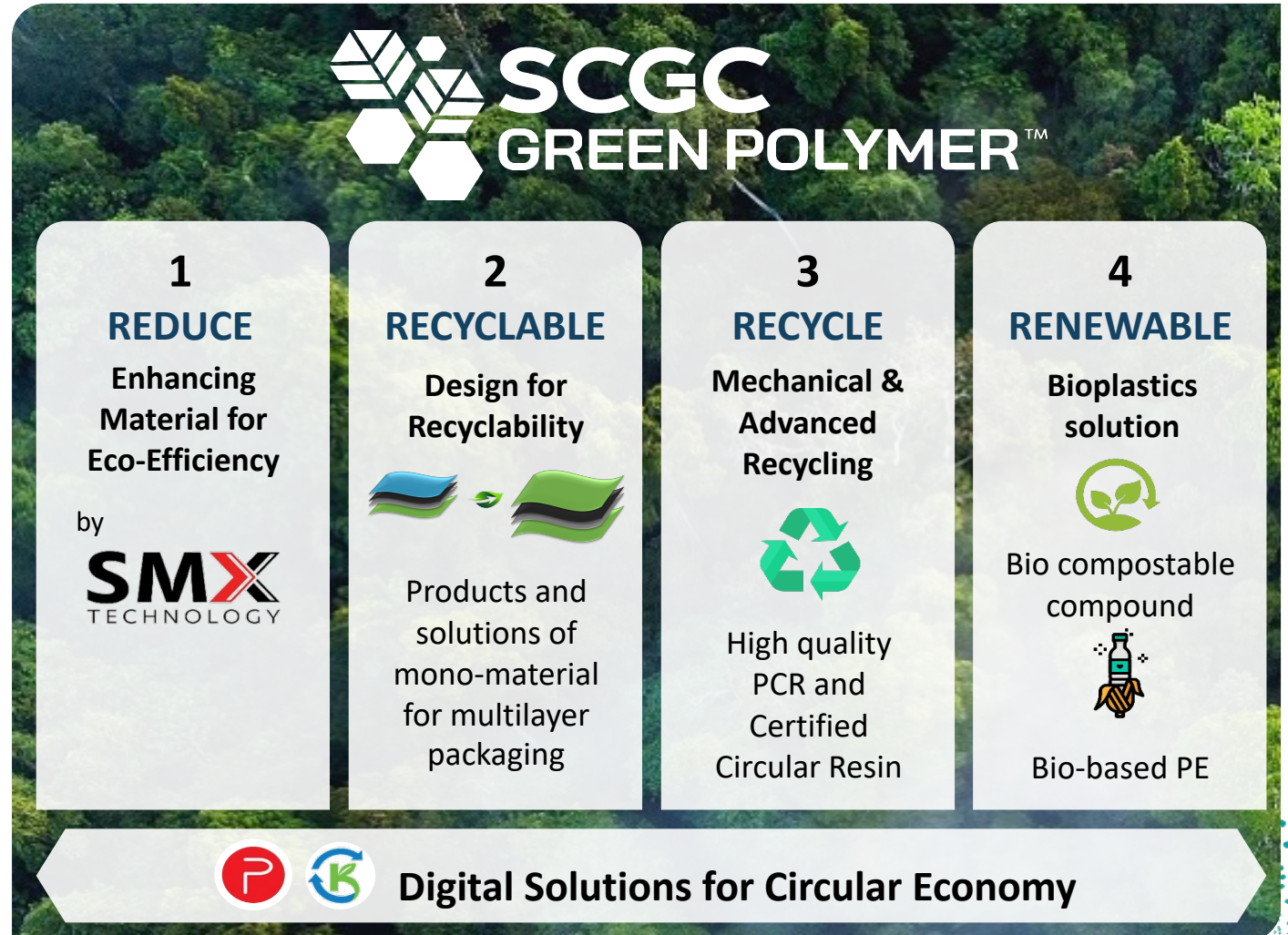
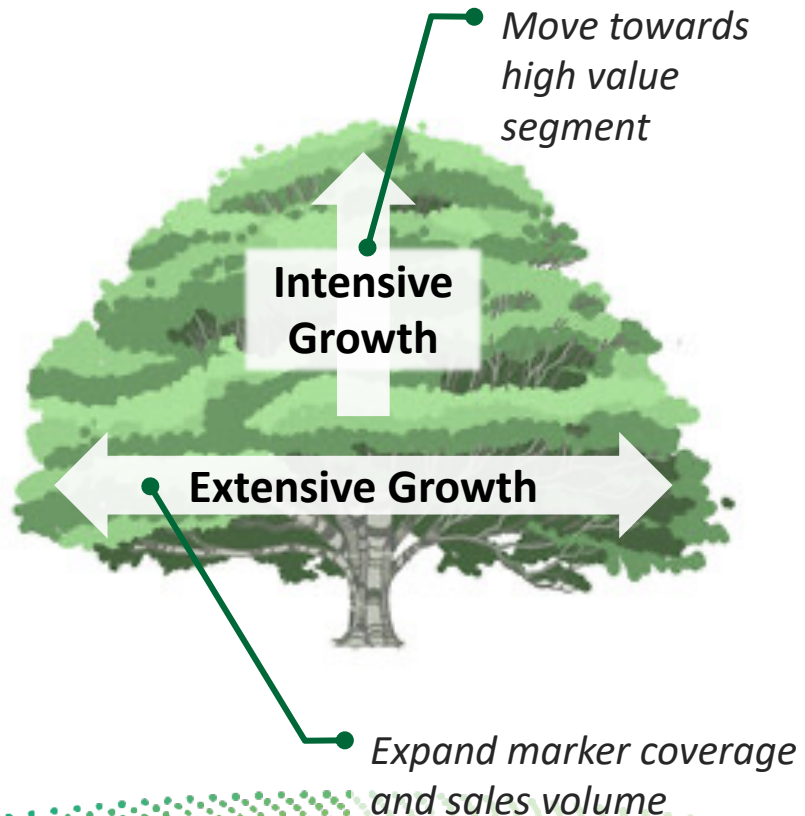
CO₂ Emission

By 20% from 2021 base
year

How SCGC can **accelerate** pathway to **net zero**?

Redefine material portfolio to Green Polymer through 4Rs approach

Growth Strategy



Collaborate with global and local partners to deliver **eco-friendly material and products** from SCGC **SCG GREEN POLYMER™** portfolio



Eco-friendly Lubricant Bottles

- Mixed with 25% high-quality PCR helping to **reduce over 320 tons of waste** in 2021
- SCG Green Polymer™ able to trace back to the source of raw material
- Green Polymer **certified by the Global Recycle Standard (GRS)**



Circular PP Made with Advanced Recycling Technology

- Circular PP made from Recycled Feedstock using **Advanced Recycling Technology**, transforming post-consumer plastics that hard to recycle into recycled feedstock
- First ASEAN's food packaging that has been **certified "ISCC PLUS"** throughout the whole supply chain.

How SCGC can achieve 20% CO2 emission reduction?

Investing in energy efficiency and transition toward low-carbon fuel



Using TH as our basis and translate our best practices to other locations.



Incorporate RE as part of business expansion both domestic and regional.



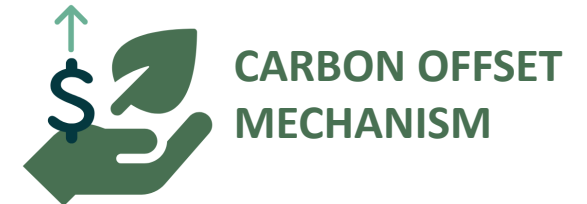
Utilize low-carbon fuel and electrical heating for process heat.



Accelerate recycling capacity and explore the use of renewable raw materials.



Work with stakeholders to drive CCS deployment and explore opportunities in CCU



Carbon Offset plans such as NCS & Carbon Credit.

Summary

- SCGC is transforming to sustainable chemical company through providing high quality PCR and bio-base material
- Reduce GHG emission through renewable energy and innovating new technology to utilize less fossil feed stock



LESI – 4 P COUNCIL WEBINAR– NOVEMBER 2022 i

MINING AND THE DECARBONIZATION JOURNEY TO NET ZERO

Presented by: Dr. Dallas L. Wilkinson



MINING



What's mining role in delivering NET Zero ?



Why mining is important ?



MINING

What?

Why?



The Mining Technology Revolution

The Global Mining industry generates significant innovation:



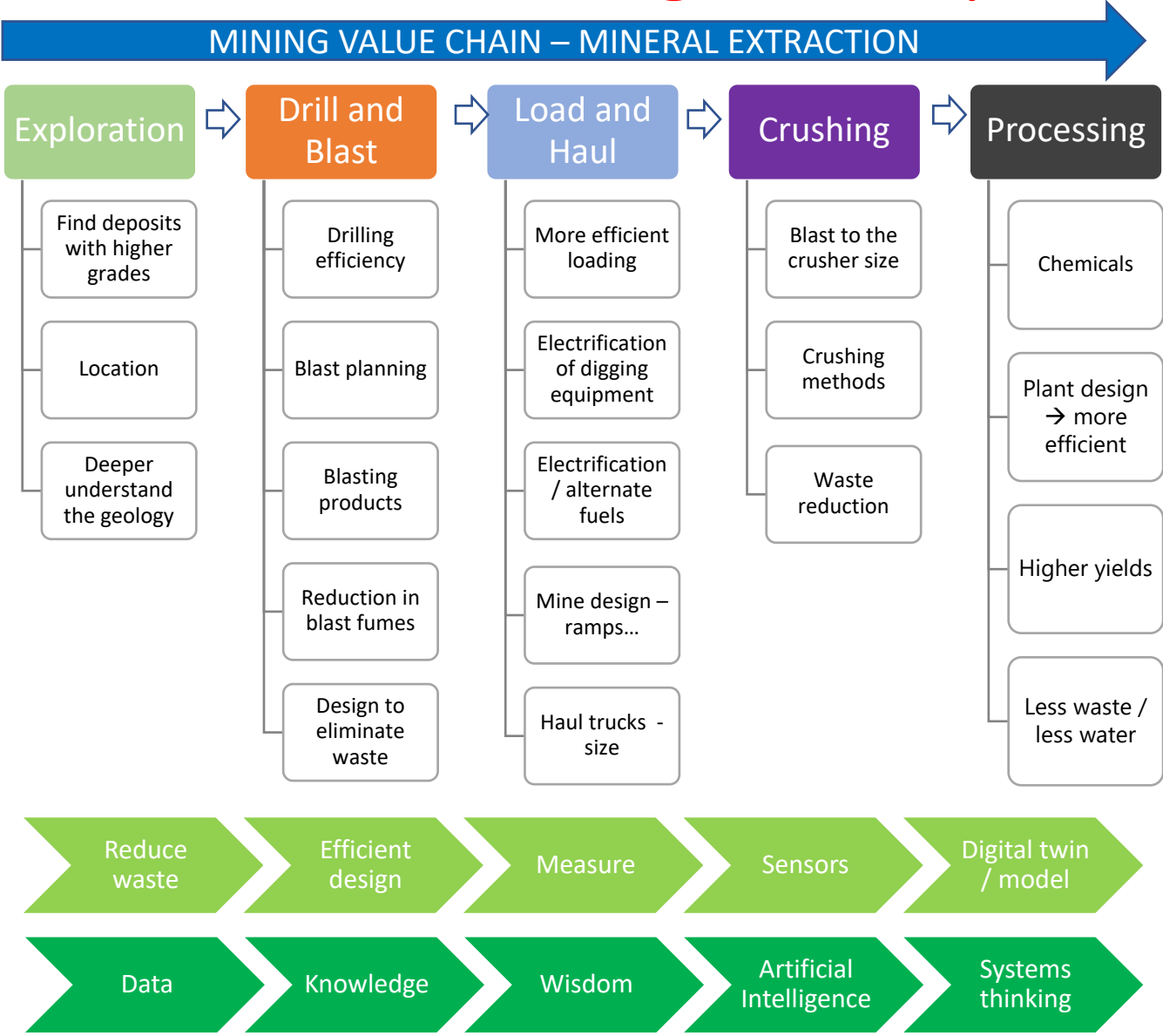
Global trends emerging include:

- **Environment**
 - Decarbonisation (Net Zero by 2050)
 - Carbon capture
 - Climate change and global warming
 - Rehabilitation of sites post mining
- **Energy**
 - Efficiency
 - Alternate fuels, electrification of fleet and equipment
 - **Transition to green energy**
- **Digitization**
 - Big data - data analytics, sensors
 - IoT – Data Generation, Curation, Storage & Use for Decision making
 - Machine learning, Artificial intelligence
 - Creation of digital twins
- **Automation and Robotics**
- **Environment, Social and Governance (ESG)**
 - Stricter and more comprehensive expectations
 - wider range of stakeholders
 - Vocal communities, traditional land owners, shareholders etc.
 - Tightening of Statutory Regulations
 - Legislative control, rehabilitation, exploration and operation.
 - A generational change
- **Geopolitics**

“The mining industry
accounts for
10 percent of world
energy consumption.
Mining consumes
gigantic amounts of
energy.”



So what is the mining industry doing?



ENERGY Progress!

- Mines now being designed diesel free / energy neutral
- Entire Value chain focus on energy efficiency
 - Inputs and outputs
- Down stream innovation
- Common “burning platform” (c.f. Safety)
- Hydrogen trucks and equipment underway (HETS)
 - 2025-2030 commercially available
- Solar and Wind playing an important role
- Biodiesel
- Hydropower
- Geothermal
- Electric vehicles already available and developing quickly





Mining start ups (METS) – an example

Who we are?

3ME Technology is an Australian heavy-vehicle battery manufacturer designing and producing energy-dense, lithium-ion battery systems in a modular format to power mining and military electric vehicles (EV) and equipment.

Vision

Our vision is to create cleantech for the highest, deepest and toughest endeavours. We power our global partners to operate smarter, safer and more sustainably.

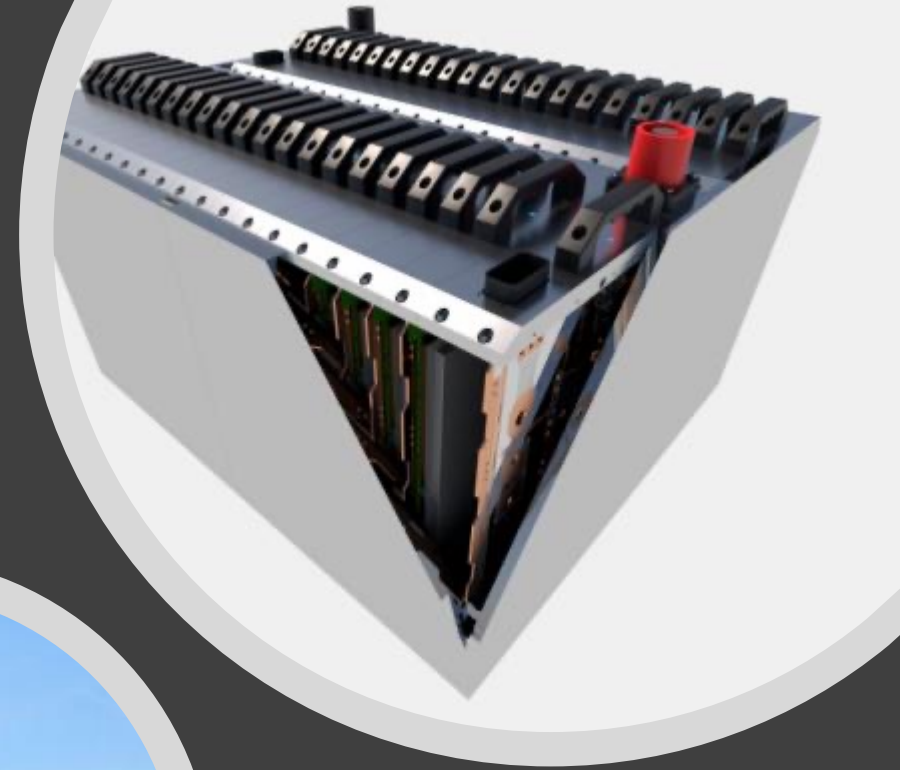
Experience

3ME Technology has over 15 years of experience in e-mobility and battery systems. We have a diverse and rapidly growing team of high-performance 3ME Technologists including operational experience in the industries we serve.



What other role does mining play in energy transition?

- Mining must also be able to deliver the demand for new, green energy critical minerals.
- Critical minerals are used to manufacture new batteries to power electric vehicles and key components of other renewable energy technology
- So what is a critical mineral?
 - E.g. Lithium, Copper, Cobalt, Nickel, Rare earths




World economic forum:

Renewable-based technologies require massive inputs of metals and minerals to function

The mining sector is not equipped to maintain the demand yet.

An unprecedented demand of 3 billion tons of metals exists to effectively transition to clean energy.

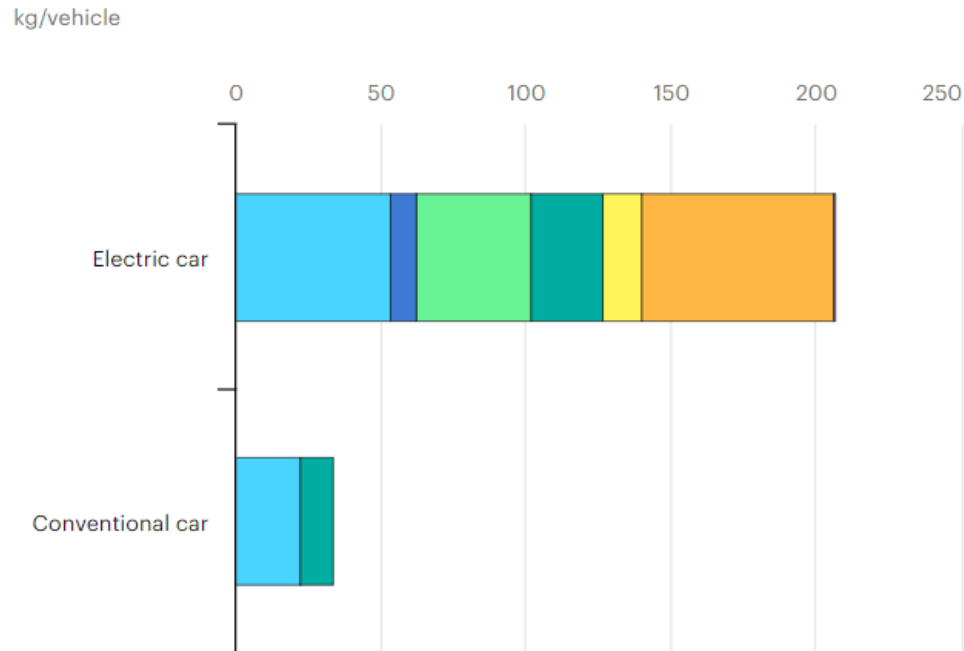
Industry will require 6 times more mineral inputs by 2040 to make net zero by 2050
e.g. new mines, new technologies, new ways of mining.

- 
- Transformation in mining is urgently required
 - The Mining Industry need to reduce the energy, water, and environmentally intensity.
 - Innovation has a pivotal role
 - Global start-up ecosystem will be required to bridge critical gaps.

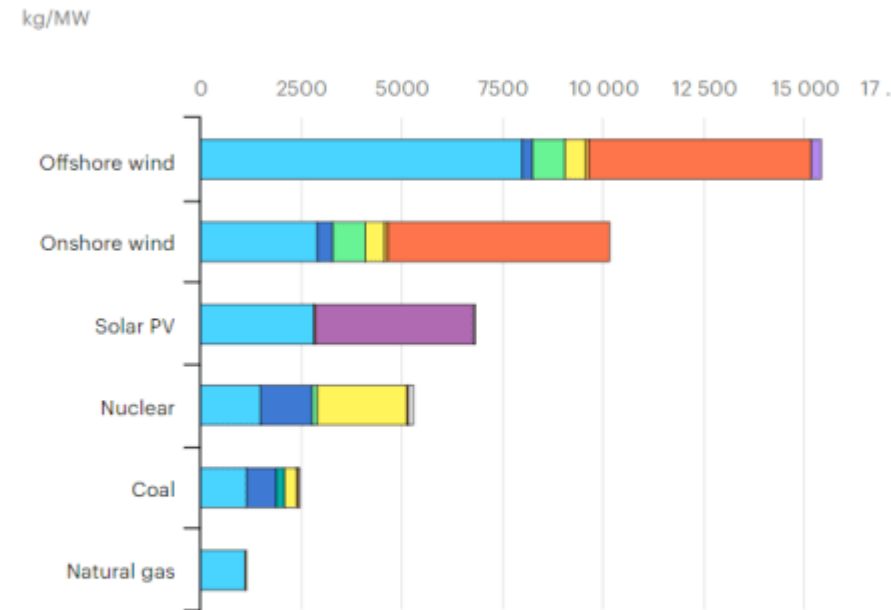
Demand?

IEA (2021), The Role of Critical Minerals in Clean Energy Transitions, IEA, Paris
<https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions>,
License: CC BY 4.0

Minerals used in electric cars compared to conventional cars



Minerals used in clean energy technologies compared to other power generation sources



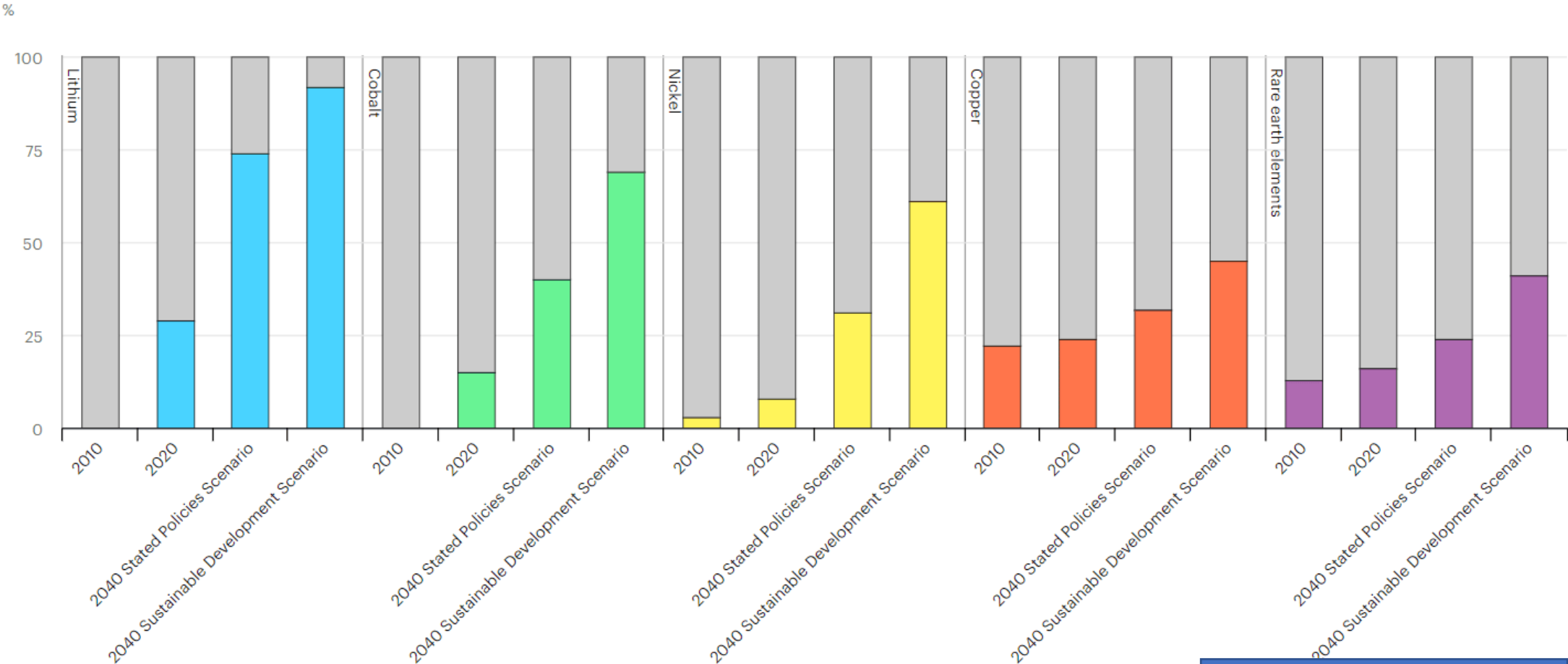
NOTE: 1 MW = 1,000 kilowatt hours is enough to supply the average power requirement for around 2,000 homes for an hour
A Tesla Model 3 is typically around 62 kw/hour

SOURCE: International Energy Agency

Copper Lithium Nickel Manganese Cobalt Graphite Zinc
Rare earths Others

Copper Nickel Manganese Cobalt Chromium Molybdenum Zinc
Rare earths Silicon Others

Share of clean energy technologies in total demand for selected minerals by scenario, 2010-2040



The Mining Technology Revolution

Energy is a key innovation focus (mining and beyond)

New companies are joining the industry

Business models are changing

Collaboration is coming more important:

Merger and acquisitions

Commercialization is rapid – changing approach.

Global imperative – Consortiums are being established



Implications for Licensing

- Collaboration
 - Multiple partners including miners
 - Who owns the technology? Access?
- Exclusivity barriers
- Timelines to be able to apply?
- Geographic aspects
- Application in Industry segments
- Trade secret role
- Confidentiality
- Value equation and returns
- Speed of change of technology
- Future disruption – new technologies, stranded technology
- Systems versus products
- Delivery of ongoing support
- Role of software / IoT / Data
- Importance of licensing in and out!



Summary

- Mining industry is a key part of the energy transition with supply of critical minerals
- Mining industry has a strong demand for energy with an equally strong focus on energy efficiency.
- Future energy demands will be met by many different technologies
- Green energy will be a key feature including
 - Hydrogen
 - Batteries
 - Solar
 - Wind
- Transition is underway!
- A combination of clean energy is required!
- WATER! Another challenge
- Technology (IP) is critical enabler for success and delivery of **2050 net zero!**



Thank you.....

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***NOTE:** The views presented in this presentation are the views of the Author and not representative of any organization or company.*





Environmental sustainability and a greener economy: The transformative role of 5G

Green tech helping net zero emissions by 2050

LESI - 4iP webinar

Nov 15, 2022

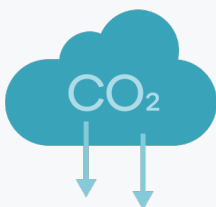
Qualcomm

Global Economics
Stephanie Guichard

5G enables a more sustainable future

5G delivers a ubiquitous broadband data network that enables a revolutionary opportunity for improvement in environmental sustainability and a tremendous opportunity for economic growth and new jobs in the United States.

GHG emissions reduction



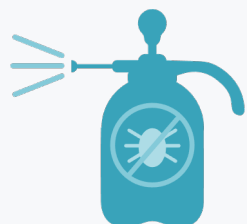
370+ million
metric tons of
GHG emissions
avoided in 2025

Optimal household water management



410 billion
gallons of water
saved annually

Pesticide use reduction



50% less
pesticide

Energy usage optimization



20%
fuel efficiency

Green jobs creation

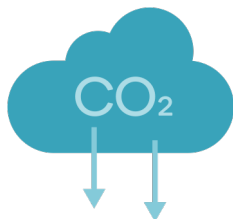


300K
new green jobs
by 2030

Citations on subsequent slides

5G enables a more sustainable future

GHG emissions reduction



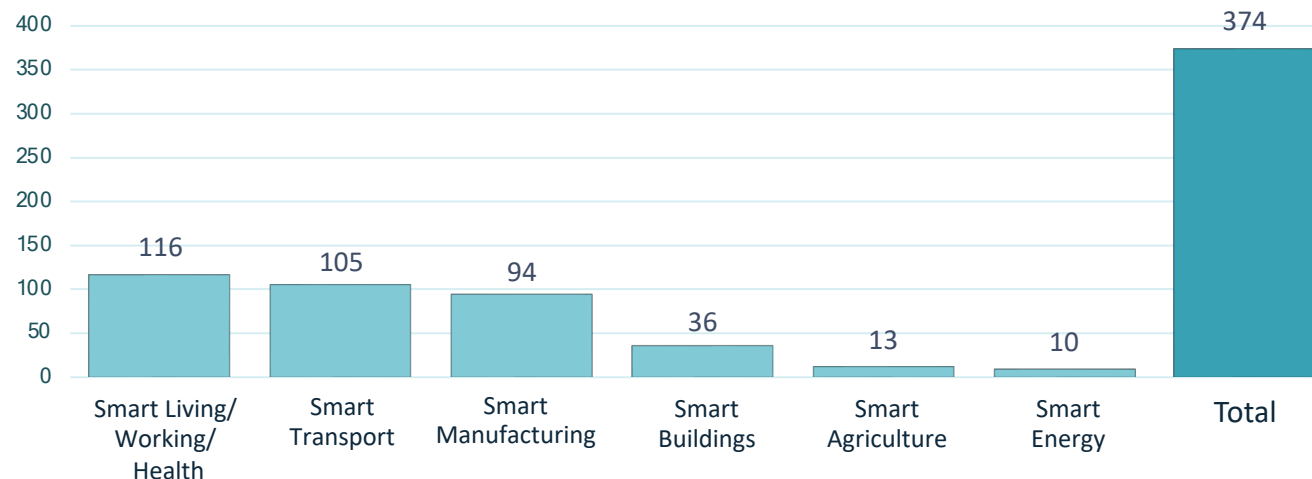
The way 5G reduces emissions is expanding every day, and this development is inspiring hopes of an emissions-free future. Leveraging groundbreaking technologies such as 5G can

help us use natural resources more efficiently and reduce our carbon footprint.

The following use cases will benefit significantly from the deployment of 5G and their contribution to the reduction of GHG emissions in 2025 has been projected to be significant.

- Smart Living/Working/Health
- Smart Transport
- Smart Manufacturing
- Smart Buildings
- Smart Agriculture
- Smart Energy

5G Use Cases: Avoids million metric tons of GHG emissions in 2025 in the United States¹



5G is expected to enable in 2025 the reduction of **374 million metric tons of GHG emissions in the United States** - approximately 6% of the annual emissions.

Emissions savings enabled by 5G are equivalent to

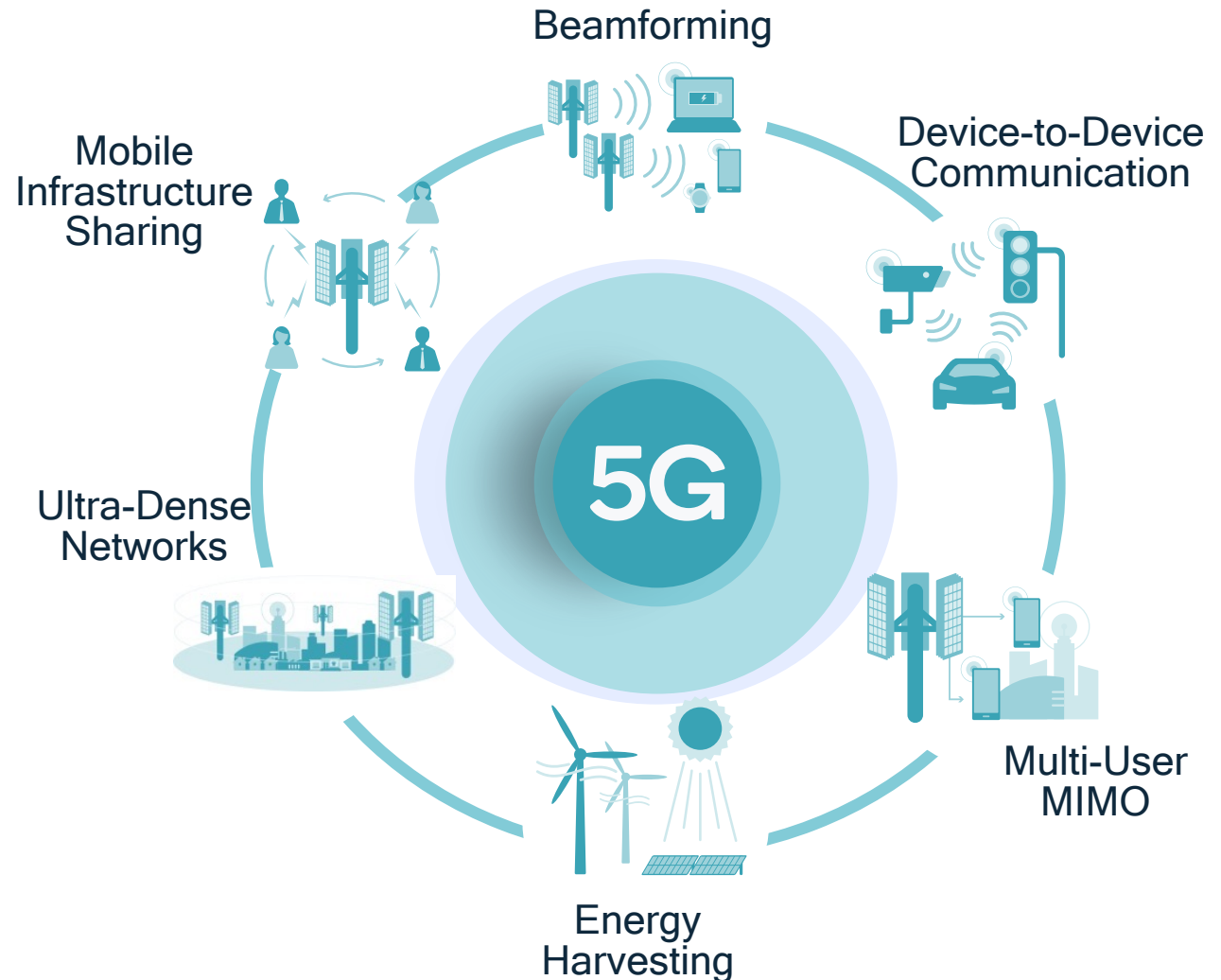
- Taking 81 million passenger vehicles off the U.S. roads for one year;
- Canceling U.S. aviation's 2018 CO₂ emissions twice;
- Greenhouse gas emissions avoided by 77,000 wind turbines running for one year; and
- Carbon sequestered by 460 million acres of U.S. forests for one year.

[1] Independent analysis based on data published by GSMA, "The Enablement Effect The Impact of Mobile Communications Technologies on Carbon Emission Reductions" (2019). https://www.gsma.com/betterfuture/wpcontent/uploads/2019/12/GSMA_Enablement_Effect.pdf

Energy efficiency of 5G networks

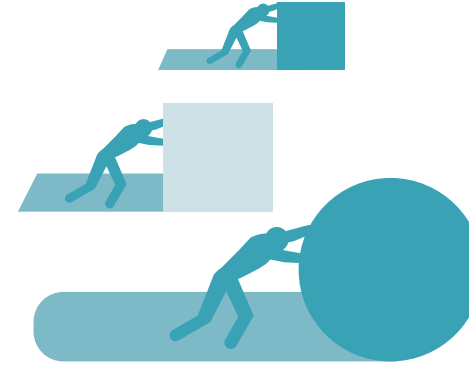
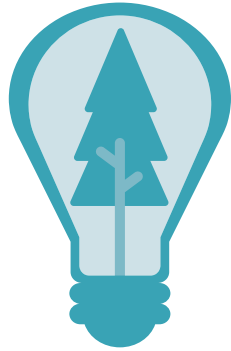
Examples of how 5G core technologies move toward energy efficiency

- Beamforming
- Device-to-Device Communication
- Mobile Infrastructure Sharing
- Energy Harvesting



Industry opportunities:

How 5G environmentally-sustainable innovations can lead to a competitive advantage



Sustainability innovations



Competitiveness

Product and process

- Lower electricity use
- Reduced emissions
- Lower consumption of water, gas, coal
- Reduced hazardous material use

Economic outcomes

- Market share
- Profit margins
- Revenue
- Return on assets
- First-mover advantage
- Productivity
- Reduced costs

Non-economic outcomes

- Reputation
- Quality
- Customer and partner satisfaction
- Employee engagement

Source sample text

5G environmentally sustainable innovations


Thank You!

Q&A

Forthcoming Webinar:

Date	Title	Summary
26 Jan, 2023, 16h (CET)	'Who owns your ink? The copyright protection of tattoos'	With Dr Paula Westenberger



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 www.4ipcouncil.com/events